



Written Language:

Storing knowledge

Making recycled paper / Teachers notes

Focus

The activity introduces students to a technique for making hand made paper first developed by the Chinese nearly two thousand years ago. They will also be able to design and make their own hand made paper.

Objectives

Students will:

- learn about the stages for making handmade paper
- make a sample of handmade paper by following a step by step procedure.

Outcomes

All students will:

- make a sample of handmade paper.

Most students will also:

- list the stages in the process for making handmade paper.

Some students will also:

- design and make their own hand made paper
- describe what happens in each stage of the process and give reasons for each stage.

We would suggest that you use unprinted computer/photocopy paper when the students are using the technique for the first time. The students can then select from a wider range when they move on to apply their experience and design their own paper.

Many types of paper can be used including:

- Computer paper (unprinted).
- Newspaper (if you want a greyish coloured paper).
- Magazines.
- Egg cartons.
- Old card (for heavier paper).
- Toilet paper.
- Paper bags.
- Non-waxed boxes (pre-soak in warm water).
- Tissue paper (for finer paper).
- Kitchen paper.

Other Equipment:

- Sponge.
 - Wire or plastic mesh (mould).
 - Wood frame - old picture frame can be used (the deckle).
 - Plastic basin/tub (large enough to totally immerse frame).
 - Food processor or blender (for making paper pulp).
 - White felt or flannel fabric.
 - Staples or tacks (for tacking screen onto the frame).
 - Liquid starch (optional).
 - Grease proof paper.
- Worksheet: *Making recycled paper* (1 copy per student).
 - Worksheet: *The history of paper* (1 copy per student).

Equipment (per group)



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Attach the mesh (mould) to the frame (deckle) before the lesson. Ask the students if they can remember from the gallery who were the first people to make paper and how long ago the first paper was made. Tell the students that they are going to follow a very similar procedure to make handmade paper. Show the students samples of handmade paper, including some you have made using the technique. Give all the students a copy of the Making recycled paper worksheet. Introduce the equipment and then go through the procedure emphasising the following points:

- The mould or deckle has been made for them.
- If when they slowly raise the mould they see that there is not a sufficiently thick or uniform layer of pulp in the mould coating the mesh they should start again by stirring the pulp mixture again, or add more pulp to the mixture, or even pour the pulp into the submerged mould.
- When lifting the mould from the water basin they should keep it level otherwise the pulp will move to one side of the mould. They should hold the mould above the water to let all the water drain back into the basin.
- When they have placed the felt on top of the pulp they should try and remove as much water as possible from the pulp by carefully running a sponge under the mesh. They will need to wring out the sponge and repeat the process several times to remove as much water as possible to dry the pulp.
- When they can no longer get any water out using the sponge then they should very carefully turn the mould over and let the felt and paper stuck to it fall onto the grease proof paper on the bench. They can tap the mesh very gently to help. If it does not fall off the mesh they have not removed sufficient water and should use the sponge again.
- They should put another sheet of grease proof paper over the felt and can put a large thick book on top of the grease proof paper to act as a press. They can then also physically press down on top of the book.
- They should leave it for about 15 minutes before attempting to very carefully separate the still damp hand made paper from the felt.
- They should leave it to dry on some paper towels on a side bench near to a window or radiator.

When the students have perfected their technique they can then start experimenting with a recipe for their own paper. They could test the properties of their paper by using the tests introduced in the next activity. They could carry out the next activity while they are waiting for their paper to press and dry.

The worksheet *The history of paper* gives some information about the invention of paper in China and suggests some possible ingredients for students to experiment with when making their own paper.